

Lab 3 Advanced Program Vending Machine

Your program will simulate the operation of a vending machine. The machine will dispense, upon reception of the correct amount of money, a choice of Gum, Peanuts, Cheese Crackers, or M&Ms. Your software will perform the following:

1. Display a welcome message and instructions.
2. Set the initial inventory to two (2) of each kind.
3. Prompt the user for item selection. Gum (G), Peanuts (P), Cheese Crackers (C), or M&Ms (M). Reject any invalid selections.
4. Confirm the customer's selection.
5. Prompt the user for the amount to enter: Gum (\$0.50), Peanuts (\$0.55), Cheese Crackers (\$0.65), or M&Ms (\$1.00).
6. Accept money inputs of dimes (D), quarters (Q), and one-dollar bills (B).
7. If the customer selects an out of inventory item, prompt them to make another selection.
8. Vending machine will shut down if the entire inventory reaches zero.
9. Assume there is no limit on the amount of change the vending machine contains.
10. Make provisions for a secret code that when entered will display the current inventory of items.

Sample Processing

Welcome to Mr. Zippy's vending machine.
Cost of Gum (\$0.50), Peanuts (\$0.55), Cheese Crackers (\$0.65), or M&Ms (\$1.00).
Enter item selection: Gum (G), Peanuts (P), Cheese Crackers (C), or M&Ms (M)
C
You selected Cheese Crackers. Is this correct (Y/N)?
Y
Enter at least 65 cents for selection.
Dimes (D), Quarters (Q) and dollar bills (B):
B
Enough money entered.
Cheese Crackers have been dispensed.
Change of 35 cents has been returned.

Enter item selection: Gum (G), Peanuts (P), Cheese Crackers (C), or M&Ms (M)

General Requirements:

The student's ARM Assembly code file needs to contain the following:

1. Proper header information that include commands that assemble, link, run the file and run the file using the debugger that is specific for their file.

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2. Data section that defines all the output strings.
3. Code comment sections that describe the major sections of the code:
 - a. Welcome message
 - b. Cost of items message
 - c. Prompt for selection
 - d. Verify selection
 - e. Prompt for payment until enough is entered
 - f. Dispense item, update inventory and given change
 - g. Exit program when inventory of all items reaches zero
 - h. Go back to step b.
 - i. Print inventory when secret code is entered.

Students should retain a copy of this lab to be used in labs 4 and 5.

This lab was assigned
Fall 2021
Spring 2020

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Student _____ Lab Instructor: _____

Total Score: _____ Late Penalty? No _____ Yes: _____

Feature	Points off
Code Comments/Documentation <ul style="list-style-type: none"> • Class, Term, Author, Date. • Purpose of software • Documentation for the start of each loop and function (subroutine) • Documentation for error checking • In-line comments that explain why the following code exists. 	
Welcome and instruction message are displayed and clear.	
Enter invalid item selection and ensure it is rejected and program re-prompts for entry.	
Enter secret code and ensure inventory of all four items is set at 2 each.	
Select M&Ms and select it is NOT the right selection.	
Select M&Ms, select it is correct selection. Enter payment of dollar bill. Verify item and correct change is dispensed (0 cents).	
Select Cheese Cracker, select it is correct selection. Enter payment of dollar bill. Verify item and correct change is dispensed (35 cents).	
Select Peanuts, select it is correct selection. Enter payment of dollar bill. Verify item and correct change is dispensed (45 cents).	
Select Gum, select it is correct selection. Enter payment of dollar bill. Verify item and correct change is dispensed (50 cents).	
Enter secret code and ensure inventory of all four items is at 1 each.	
Select M&Ms, select it is correct selection. Enter payment of dimes until \$1.00 is entered. Verify item and correct change is dispensed (0 cents).	
Select Cheese Cracker, select it is correct selection. Enter payment of Quarter, Quarter, dollar bill. Verify item and correct change is dispensed (85 cents).	
Enter secret code and ensure inventory is: <ul style="list-style-type: none"> M&Ms – 0 Cheese Crackers – 0 Peanuts – 1 Gum – 1 	
Select M&Ms and ensure message is displayed that item is out and please make another selection.	
Select Cheese Crackers and ensure message is displayed that item is out and please make another selection.	
Select Peanuts, select it is correct selection. Enter payment of Dime, Dime, Quarter, then a dollar bill. Verify item and correct change is dispensed (90 cents).	
Select Gum, select it is correct selection. Enter payment of Quarter, Quarter. Verify item and correct change is dispensed (0 cents). Verify out of inventory message is displayed and machine is shut down. Control is returned to OS.	

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